is advanced by the authorities quoted by Mr. Bateson which can be regarded as antagonistic to this impression by any one who knows a little about the working of heredity in insect varieties.

A word about "showcases." I hope that no reader of NATURE may be led to think lightly of these as a means of instruction, and as one of the chief objects of a great museum, because Mr. Bateson states that there is a wrong identification in one at the Royal College of Surgeons, and because of the distinction which he is so careful to draw between these and other cases. Some of the most valuable specimens in the world are in "showcases." They form one of the most admirable features in modern museum arrangement, and the best material obtainable is set aside for them. This is equally true on the continent and in our own country, where Prof. Sir W. Flower and Prof. Stewart have devoted an immense amount of time and labour to this department, an important recent feature of both their museums being the illustration of the uses of colouring in animals. Prof. Lankester too is developing the same method of instruction with great success in the Oxford Museum.

It is in no way remarkable or reprehensible that four recent writers (Mr. Lloyd Morgan, Mr. Beddard, Mr. Romanes, and myself) concerned with this subject and knowing the care taken in choosing these illustrations, should also make use of some of them in their published works.

One "difficulty" brought forward by Mr. Bateson is so futile that I did not allude to it before, and only refer to it now because he repeats it. He seems to think that doubt is thrown on the theory of mimicry because *V. pellucens* does not resemble a wasp, and yet lives in its nests—as if any believer in natural selection maintained that all closely allied forms must defend themselves in the same way!

As to Mr. Bateson's statement at the end of his letter that he only intended to draw attention to the matter (and not to hurt me thereby), I can only say that this statement implies an extraordinary want of acquaintance with the niceties of the English language. It is so easy to correct mistakes without leaving anything but a feeling of gratitude in the mind of one who has made them, that, in justice to Mr. Bateson's intelligence, I am compelled to doubt the accuracy of his memory.

Oxford, November 27. EDWARD B. POULTON.

"A Criticism on Darwin."

I WRITE to protest against what appears to be a growing habit on the part of certain publishing firms of advertising their books in a most misleading manner, viz. by selecting any phrase from a notice of the book which may serve to indicate that the writer's opinion on the work as a whole is favourable, whereas, if quoted with its immediate context, the passage would prove the precise opposite. For example, I see in NATURE and elsewhere an advertisement of Mr. David Syme's book "On the Modification of Organisms; a Criticism of Darwin" (Simpkin, Marshall, and Co.), in which I am quoted as having called the writer "a shrewd critic." Standing by itself these words imply that I have somewhere recommended the work as well worthy of perusal. The fact of the matter, however, is, that the words occur in a foot-note which I added to the proof of my recently published book on "Darwin and After Darwin," for the expressed purpose "of showing the extraordinary confusion of mind which still prevails on the part of Darwin's critics, even with reference to the very fundamental parts of his theory." Elsewhere in the same foot-note I refer to the writer's "almost ludicrous misunderstandings"; and conclude by saying that he "shows himself a shrewd critic in some other parts of his essay, where he is not engaged especially on the theory of natural selection." I may now add that the only parts of his essay to which these advertised words apply are those where he treats of the deleterious effects of in-breeding.

GEORGE J. ROMANES.

Animals' Rights.

I AM not surprised that you should find my essay on "Animals' Rights" an "absolutely useless" one, for I certainly did not design it to be a congenial hand-book for the apologists of Vivisection. Nor do I the least object to your drawing what conclusions you like from the premisses laid down by me, even though you seek your justification of vivisection from the very definition that seems to me to be most clearly condemnatory of it. But, as a matter of fact, and not of personal opinion, I beg to point out that you have utterly misrepresented the leading principle of the book, and that the two contradictory definitions of animals' rights, which you attribute to *my* confusion of mind, are in reality the phantom creation of your own. On p. 9, in referring to Herbert Spencer's definition of *human* rights, I claim for animals a "due measure" (not an equal amount) of the same "restricted freedom"—a claim which by no means prohibits *all* use and employment of animals, as you conveniently assume. On p. 28 I give, not a second definition, but a repetition and amplification of the one given on p. 9; and the "due measure of restricted freedom" is explained as being "a life which permits of the individual development, subject to the limitations imposed by the permanent needs and interests of the community." Surely this is intelligible enough; yet the reviewer has utterly failed to understand it. H. S. SALT.

38 Gloucester Road, N.W., November 26.

Induction and Deduction.

MISS JONES has not quite understood me. I maintain that definitions should be *arbitrary*, but not necessarily that they should be made *at random*. If they are so made it will, as she points out, seldom happen that they turn out useful, or have any real applications, though this would not affect their logical validity if it amused any one to make them and investigate their consequences. Such definitions with no real applications are actually made by pure mathematicians. The peculiar value of the definitions of geometry consists however in the fact that they have so many real applications, and it is only by a long process of survival of the fittest that a few such happy definitions are weeded out from among the many which lead to nought. The definitions of geometry could not now be laid down at random, but they are none the less arbitrary, for they require no support from any *à priori* considerations. EDWARD T. DIXON.

Trinity College, Cambridge, November 28.

The Present Comets.

I HAVE to notice the following mistake in my letter which appeared in NATURE (vol. xlvi. p. 561). I called comet Brooks, comet "*c*." I now find it should be called comet "*d*."

I have since writing been quite satisfied that the head of comet Swift extends less towards the *n* than towards the *s* (as suggested in my letter). T. W. BACKHOUSE.

West Hendon House, Sunderland, November 26.

The Afterglow.

AFTER witnessing, with Profs. Lyon and Orr, remarkable effects of afterglow on November 27, I waited for the next issue of NATURE (No. 1205), in the expectation that similar phenomena would be mentioned as having been seen in the British Isles. Curiously enough, the letter on "Afterglow" in that issue comes from Honolulu, dated November 8. It is possible, however, that the effects of volcanic dust from one of the great eruptions of the past summer are now beginning to be noticeable in opposite hemispheres. The Krakatão eruption of August 27, 1883, appears to have caused exceptional afterglows in Honolulu on September 5, and in Western Europe by November 9, in the same year.

From the top of Killiney Hill, on November 27, at 4 30 p.m., we witnessed an extraordinary combination of cloud-effects, such as I do not remember having seen since the winter of 1883-4. On the west, dense clouds were forming upon Two Rock Mountain, and streaming down into the hollow of Carrickmines; but beyond them a clear golden sunset, passing above into green and intense blue, was visible above the summits of the hills. Fleecy cirrus clouds in the zenith were a delicate pink against clear blue, and this glow extended to all the higher cloud-masses in the east, until the sea itself became rose-pink by reflection. But in the extreme east the exceptional magenta tints, almost violet, that characterized many of the Krakatão glows, were strikingly apparent, though in part veiled by the low grey cloud of the Channel. These effects were at their maximum when the sun had set half an hour; they would doubtless have been of much longer duration but for the near clouds forming on the mountains.

One's thoughts at once turned to the great eruption of Sangir in the Philippines, which occurred, however, as far back as

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June 7 of this year. Weather and locality have been against my seeing clear sunsets until to-day, when no unusual effects were noticeable; but Mr. Bishop's letter makes it possible that in other places similar effects may be observable.

GRENVILLE A. J. COLE.

Royal College of Science for Ireland, Dublin, December 4.

ELECTRICAL STANDARDS.

THE following supplementary report has been presented to the President of the Board of Trade by the Electrical Standards Committee:—

To the Right Hon. A. J. Mundella, M.P., President of the Board of Trade.

Subsequently to the presentation of our former report to Sir Michael Hicks-Beach in July, 1891, we were informed that it was probable that the German Government would shortly take steps to establish legal standards for use in connection with electrical supply, and that, with a view to secure complete agreement between the proposed standards in Germany and England, the Director of the Physico-Technical Imperial Institute at Berlin, Prof. von Helmholtz, with certain of his assistants, proposed to visit England for the purpose of making exact comparisons between the units in use in the two countries, and of attending the meeting of the British Association which was to take place in August in Edinburgh.

Having regard to the importance of this communication, it appeared desirable that the Board of Trade should postpone the action recommended in our previous report until after Prof. Helmholtz's visit.

That visit took place early in August, and there was a very full discussion of the whole subject at the meeting of the British Association in Edinburgh, at which several of our number were present. The meeting was also attended by Dr. Guillaume, of the Bureau International des Poids et Mesures, and Prof. Carhart, of the University of Michigan, U.S.A., who were well qualified by their scientific attainments to represent the opinion of their respective countries.

It appeared from the discussion that a few comparatively slight modifications of the resolutions included in our previous report would tend to secure international agreement.

An extract from the report of the Electrical Standards Committee of the British Association, embodying the results of this discussion, was communicated to us by the Secretary, and will be found in the appendix to this report.

Having carefully reconsidered the whole question in view of this communication, and having received the report of the sub-committee mentioned in resolution 14 of our previous report, we now desire, for the resolutions contained in that report, to substitute the following:—

RESOLUTIONS.

(1) That it is desirable that new denominations of standards for the measurement of electricity should be made and approved by Her Majesty in Council as Board of Trade standards.

(2) That the magnitudes of these standards should be determined on the electro-magnetic system of measurement with reference to the centimentre as unit of length, the gramme as unit of mass, and the second as unit of time, and that by the terms centimetre and gramme are meant the standards of those denominations deposited with the Board of Trade.

(3) That the standard of electrical resistance should be denominated the ohm, and should have the value 1,000,000,000 in terms of the centimetre and second.

(4) That the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice 14·4521 grammes in mass of a constant cross sectional area, and of a length of 106·3 centimetres may be adopted as one ohm.

(5) That a material standard, constructed in solid metal, should be adopted as the standard ohm, and should from time to time be verified by comparison with a column of mercury of known dimensions.

(6) That for the purpose of replacing the standard, if lost, destroyed, or damaged, and for ordinary use, a limited number of copies should be constructed which should be periodically compared with the standard ohm.

(7) That resistances constructed in solid metal should be adopted as Board of Trade standards for multiples and submultiples of the ohm.

(8) That the value of the standard of resistance constructed by a Committee of the British Association for the Advancement of Science in the years 1863 and 1864, and known as the British Association unit, may be taken as ·9866 of the ohm.

(9) That the standard of electrical current should be denominated the ampere, and should have the value one-tenth (0·1) in terms of the centimetre, gramme, and second.

(10) That an unvarying current which, when passed through a solution of nitrate of silver in water, in accordance with the specification attached to this report, deposits silver at the rate of 0·001118 of a gramme per second may be taken as a current of one ampere.

(11) That an alternating current of one ampere shall mean a current such that the square root of the time-average of the square of its strength at each instant in amperes is unity.

(12) That instruments constructed on the principle of the balance, in which, by the proper disposition of the conductors, forces of attraction and repulsion are produced, which depend upon the amount of current passing, and are balanced by known weights, should be adopted as the Board of Trade standards for the measurement of current whether unvarying or alternating.

(13) That the standard of electrical pressure should be denominated the volt, being the pressure which, if steadily applied to a conductor whose resistance is one ohm, will produce a current of one ampere.

(14) That the electrical pressure at a temperature of 15° centigrade between the poles or electrodes of the voltaic cell known as Clark's cell, prepared in accordance with the specification attached to this report, may be taken as not differing from a pressure of 1·434 volts, by more than one part in 1000.

(15) That an alternating pressure of one volt shall mean a pressure such that the square root of the time-average of the square of its value at each instant in volts is unity.

(16) That instruments constructed on the principle of Lord Kelvin's quadrant electrometer used idiostatically, and, for high-pressures, instrument on the principle of the balance, electrostatic forces being balanced against a known weight, should be adopted as Board of Trade standards for the measurement of pressure, whether unvarying or alternating.

COURTENAY BOYLE. G. CAREY FOSTER.
KELVIN. R. T. GLAZEBROOK.
P. CARDEW. J. HOPKINSON.
W. H. PREECE. W. E. AYRTON.
RAYLEIGH.
T. W. P. BLOMEFIELD, Secretary.

November 29.

ON THE PHYSIOLOGY OF GRAFTING.[1]

THE volume before us contains the record of several years of research upon the effects of different forms of grafts (using the term in its widest significance) in the vegetable kingdom.

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[1] "Ueber Transplantation am Pflanzenkörper. Untersuchungen zur Physiologie und Pathologie." Von Dr. Hermann Vöchting. Mit 11 Lithographierten Tafeln und 14 Figuren im Texte. (Tübingen: Laupp, 1892.)

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